

ALEXI NATALIE BUENAVENTURA

• buenavea@mcmaster.ca • <https://www.linkedin.com/in/alexi-buenaventura/>

Availability: May 2023 & Onwards, **Interested Departments:** Materials Test, Polymers, Elastomers & Composites Teams

EDUCATION

B.Eng., Materials Science & Engineering and Society, Year 4/5, McMaster University
Experience Ventures Scholarship Program (\$525)

Sep 2018 - Apr 2024
Hamilton, Canada

WORK EXPERIENCE

Engineering Co-op Student

May 2021 - Aug 2022

Forensic Component Services, Kinectrics

Etobicoke, Canada

- Oversaw the planning and execution of 2 corrosion immersion testing projects totaling to approximately \$100,000 in value
- Conducted failure analysis of numerous polymeric industry parts such as o-rings, bladders, cables, and diaphragms, using methods such as Differential Scanning Calorimetry (DSC), Thermogravimetric Analysis (TGA), and Fourier Transform Infrared Spectrometry (FTIR)
- Collaborated in an inter-departmental research and development cable radiation project for Canadian Nuclear Laboratories using Low Frequency Dielectric Spectroscopy/Polarization and Depolarization Current (LFDS/PDC) and infrared (IR) testing as one of the main technologists
- Strain-gauged and mechanically tested over 100 FRP samples taken from a water-dousing system of a vacuum building as a part of a long-term ageing conditional program to assess for Ontario Power Generation
- Assisted main engineer in performing project management duties and mechanical testing to assess the feasibility of utilizing CFRP composite to repair ASME Class 2 and 3 metallic piping systems

Research Assistant

May 2020 – Aug 2020

McMaster University, Department of Materials Science and Engineering

Hamilton, Canada

- Utilized Mathematica code and thorough data analysis to investigate and understand experimental data from bilayer and trilayer material systems of advanced material properties at nanoscale interfaces to be used as a basis for PhD studies.
- Developed strong presentation composition skills and articulating to an audience through weekly check-ins with supervisor, Dr. Maureen Lagos

LEADERSHIP EXPERIENCE

Current Senior Vice President & Former Co-Vice President Academic

May 2021 - Present

Materials Science Engineering Society (MSE), McMaster University

Hamilton, Canada

- Organized largest Materials Science Engineering Industry Night to date, securing 25 attending companies and over 200 attendees
- Increased student outreach for Kinectrics by connecting them with opportunities with the Faculty of Materials Engineering such as the 8th Annual Industry Night, the MSE Society “Day in the Life of a Co-op Student” Video and a program recruitment video
- Spearheaded 3 professionalism workshops to assist students in numerous engineering streams engineering in seeking employment

First Canadian Materials Hackathon Founder

July 2021 - Present

MATLS Hacks, McMaster University

Hamilton, Canada

- Successfully lead 3 different sub-teams (Marketing, Technical Help, and Technical & Challenge) to launch the first materials engineering-based hackathon-styled competition to universities Canada-wide
- Secured approximately \$9000 from sponsorship partners to fund training, testing materials, safety supplies, and marketing initiatives
- Created comprehensive Failure/Forensic challenge and Steel (Charpy Impact) challenge utilizing knowledge and principals learned from school and current student internship experiences at Kinectrics and Stackpole International

ACADEMIC PROJECTS

Materials Lab Mechanical Testing & Design Project

Sept 2019 – Apr 2020

MATLS 2H04 A/B: Integrated Materials Laboratory || Mark Received: A+

- Prepared a white cast iron sample for analysis under a light optical microscope
- Used SEM-EDS and ICP-OES analysis methods to determine percent and chemical composition of unknown samples
- Designed a tibial knee implant in a team of 4 using topology optimization, AutoCAD Inventor's 3D modelling and finite element analysis (FEA) features
- Theoretically designed a stent for CAD using materials selection principles and experimentation of decay rate of PLA in distilled water

SKILLS/INTERESTS

Laboratory Skills – Tensile/Compression Testing, Charpy Impact, Oxidation Induction Temperature/Pressure Testing (OIT/OITP), Dynamic Mechanical Analyzer (DMA) Testing, Strain Gauging (CFRP and FRP components), FTIR/Near Infrared Spectrometry (NIR), TGA, Sample Preparation, Microscopy, Soldering, Ungrounded/Grounded Specimen Cable Testing (UST/GST), Water Saw and Chop Saw Operation, Mounting/Polishing, 3D Printing, Electropolishing, Passivation, Power Tools

Qualifications Obtained: Orange Badge, Working at Heights, First Aid, Strain Gauging, Level 1 Incoming Inspector, Power Tool Safety

Interests – Fashion, Baking, Singing, Skill Building, Non-Metallic Materials (polymers, elastomers, composites)